

We claim:

1. A method for agonizing smoothened activity in a cell, comprising contacting the cell with a composition including at least one cAMP antagonist.

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2. The method of claim 1, wherein at least one cAMP antagonist inhibits adenylate cyclase.

3. The method of claim 1, wherein at least one cAMP antagonist is a cAMP
10 inhibitor.

4. The method of claim 1, wherein at least one cAMP antagonist is cAMP phosphodiesterase agonist.

15 5. The method of claim 1, wherein the composition agonizes *smoothened* activity with an ED₅₀ of 1 mM or less.

6. The method of claim 1, wherein the composition agonizes *smoothened* activity with an ED₅₀ of 1 μM or less.

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7. The method of claim 1, wherein the composition agonizes *smoothened* activity with an ED₅₀ of 1 nM or less.

8. The method of claim 1, wherein the cell is contacted with the composition *in*
25 *vitro*.

9. The method of claim 1, wherein the cell is contacted with the composition *in vivo*.

10. The method of claim 1, wherein the composition is administered as part of a therapeutic or cosmetic application.

5 11. The method of claim 10, wherein the therapeutic or cosmetic application is selected from regulation of neural tissues, bone and cartilage formation and repair, regulation of spermatogenesis, regulation of smooth muscle, regulation of lung, liver and other organs arising from the primitive gut, regulation of hematopoietic function, regulation of skin and hair growth, etc.

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12. A method for promoting growth or differentiation of a neuronal cell, comprising treating the cell with a cAMP antagonist.

13. A method for treating or preventing stroke, comprising administering a
15 composition including a cAMP antagonist to a patient.

14. A method for treating or preventing peripheral neuropathy, comprising administering a composition including a cAMP antagonist to a patient.